THE INDIANAPOLIS STAR
INDYSTAR.COM

January 23, 2008

Robot has dual purpose

Activity raises interest in engineering, rewards crowds

By Josh Duke
josh.duke@indystar.com
January 23, 2008

Brownsburg teacher Anthony Abrams had no trouble getting students excited about the high school's latest Project Lead the Way activity.

"It's hard to get much better as a teacher than kids pounding on the door at 6 a.m. wanting to get in . . . to work," Abrams said.

The activity involved a robot that shoots T-shirts into the crowd at Brownsburg basketball games. About 10 students in Project Lead the Way, a club that introduces students to engineering, came to school more than an hour before classes started to build and tinker with the robot.

Their contraption, made of sprinkler valves, metal pipes, wires, batteries and other gadgets on a powered wheelchair frame, passed its first test last month at a boys basketball game when it fired six T-shirts into the crowd. It returned to the court for an encore Saturday between the first and second quarters and at halftime.

"All the fans were cheering and waving their arms wanting a shirt," said Adam Carmicheal, a senior who controlled the robot during its first event. "I was a little nervous because I didn't know if it would work right, but it worked better than I thought.

"That's when I knew all the mornings were worth it because we had something everybody enjoyed."

The robot is controlled by two joysticks through a wireless connection. One joystick controls the right side of the robot, the other controls the left. Triggers on the joysticks release a firing mechanism that uses compressed air to shoot T-shirts out of purple cannons.

Students have shot T-shirts as far as 200 feet during tests outside the school. The group uses a much lower setting inside the gym.

Each cannon also is set at a different height. The upper cannon propelled a shirt into the upper level of the gym in December, Carmicheal said.

The idea to build a T-shirt-shooting robot came from Abrams and other technology staff after first considering a free-throw shooting robot.

"We thought shooting T-shirts would get more kids involved in the design process," Abrams said. "We really wanted to use it to promote our department and encourage kids to be engineers. This experience helped some students in the club decide this is what they want for their future careers."

The project created a buzz outside the department as well. Local sponsors donated $6,000 needed to build the robot. Fans at the game enjoyed the robot's first appearance and wondered why it hadn't been at more games.

"When I told some of my friends I helped build the robot, they asked, 'Did your teacher build it or did you?' " said sophomore Brad Kuskye. "That is the best part about this. They are good about letting us do the work. I've never done anything remotely close to this."

Students spent time working out the kinks before coming up with a final design. Looking back on the experience, students said the robot taught them the importance of problem solving, persistence and teamwork in addition to the engineering skills.

"I'm excited to see where it goes from here because this is just the beginning," said Wayne Johnson, another Project Lead the Way teacher. "These kids learned so much without realizing they were learning."